

# NOAA Sea Grant Environmental Literacy: A Ten-Year Vision

## Goal, Objectives, and Boundaries

### Goal

To foster an environmentally literate citizenry to improve ocean, coastal, and Great Lakes resiliency.

### Objectives

By August 31, 2018, Sea Grant staff will develop a ten-year vision for environmental literacy that (1) **defines the collective roles** of and (2) **identifies strategies** for Sea Grant research, education and outreach (i.e., extension and communication) personnel to foster environmental literacy and improve ocean, coastal, and Great Lakes resiliency efforts.

The ten-year vision will (3) **create a plan** for consistent reporting, promotion, and recognition of accomplishments and impacts, as well as (4) **develop platforms** for sharing best practices and enhancing professional development related to Sea Grant efforts to foster environmental literacy.

### Boundaries

While the National Sea Grant Office combines environmental literacy and workforce development into one Focus Area, this initiative will focus on environmental literacy only and will not specifically address workforce development. Because of its broad nature, components of environmental literacy may be a part of other visioning efforts (e.g., diversity and inclusion, citizen science, and traditional knowledge). However, the vision for environmental literacy will not include diversity and inclusion, citizen science, or traditional knowledge.

## Background Information

### Defining Environmental Literacy

*An **environmentally literate person** is someone who has a fundamental understanding of the systems of the natural world, the relationships and interactions between the living and nonliving environment and the ability to understand and utilize scientific evidence to make informed decisions regarding environmental issues.*

- NOAA Education Strategic Plan

Fostering an environmentally literate citizenry is a proactive approach to building ocean, coastal, and Great Lakes resiliency. Education is the foundation of the process, developing the awareness, knowledge, and attitudes that can lead to informed and responsible decision making. Sea Grant research informs education and outreach efforts to promote healthy, sustainable, and resilient coastal ecosystems and communities.



## Historical Perspective of Environmental Literacy and Sea Grant

Environmental education dates back to 1891 as an initiative to expand nature study and extends into the present with seminal documents like the *Closing the Achievement Gap (1998)* that demonstrated the need and value of environmental study and experiential study by students. Other key elements include the *1970 National Environmental Education Act* and the *1977 Tbilisi Report* that provided a vision for environmental education that illustrated the need for an increase in awareness and behavior change among citizens globally.

Education has been a critical component of the National Sea Grant College Program since its authorizing legislation in 1966. The legislation called for an “investment in a strong program of research, education, training, technology transfer, and public service.” (National Sea Grant College and Program Act of 1966, Public Law 89-688). Early in its history, Sea Grant developed its niche of supporting and enhancing education through the development of ocean, coastal, and Great Lakes curricula and professional development programs for educators to increase science content knowledge and pedagogical skills.

Environmental literacy became a cross cutting theme around 2007 and brought into the spotlight Sea Grant’s true niche in this area: the expertise of its staff, with degrees and experience in both science and education, and the ability and flexibility to translate research science to non-scientists. Recognizing this unique niche, Environmental Literacy and Workforce Development (ELWD) was designated a national Sea Grant focus area in 2009 joining three previously established focus areas (Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, and Resilient Communities and Economies). Through this distinguished history of promoting environmental literacy, especially at the K-12 level, Sea Grant has: (1) established solid relationships with formal and informal education communities at the local, state and national level; (2) developed a diverse array of innovative and multidisciplinary programs and products; and (3) served in leadership roles at the local, regional, national, and international levels.

### Rationale: Environmental Literacy as a Unique Focus Area

Elevation to a dedicated focus area recognizes the critical role of Sea Grant’s unique expertise and capabilities in this area. Nonetheless, environmental literacy efforts continue to span and integrate within initiatives and projects in the other three focus areas. The development and implementation of an Environmental Literacy Ten-year Vision will provide a coordinated and consistent national framework.

Moreover in recent analyses and reports, the National Sea Grant Office and the National Sea Grant Advisory Board have recommended that Sea Grant strengthen its role in environmental literacy and provide its educators with the support they need to do so.

Source	Justification
<a href="#">2014-2017 Focus Area SWOT Analysis</a> (draft)	“Increasing national coordination will help minimize overlap between programs and projects nationally and allow programs to more directly and tactically benefit from each other” was identified as an opportunity to address a weakness in ELWD.
<a href="#">2016 State Of Sea Grant: Biennial Report to Congress</a> (pg. 37)	The National Sea Grant Advisory Board specifically calls on Sea Grant to enable collaboration through programmatic and travel support at state and national levels to develop collective projects and wider scale research and evaluation programs that demonstrate the impact of efforts to improve environmental literacy in classrooms and informal education.
<a href="#">2014 State of Sea Grant: Biennial Report to Congress</a> (pg. 26)	The National Sea Grant Advisory Board specifically calls on Sea Grant to strategically strengthen its role in environmental literacy, with special emphasis on demonstrating the impact of Sea Grant formal and informal STEM education.

Finally, Sea Grant Education Network (SGEN) is finalizing its next five-year strategic plan which can serve as a starting point for the visioning plan. In the new strategic plan, SGEN outlines how it engages with the other networks to advance environmental literacy. For example, the plan calls for SGEN to increase the involvement of the Sea Grant research community in the development of its educational programs, as well as work with communication and extension staff to disseminate educational materials. This visioning process will provide the mechanism necessary to develop a strategic and coordinated approach to galvanize and advance environmental literacy programming to create a resilient citizenry. It will identify priority goals from the strategic plan and further develop strategies and activities for Sea Grant research, education, and outreach to advance these goals and advance environmental literacy.

#### Relationship of Environmental Literacy to the National and State Strategic Plans

Environmental literacy is one of the four Sea Grant Focus Areas as well as a key goal in the national strategic plan and many of the state programs' strategic plans. The table below highlights how environmental literacy fits into the national plan and the state plans for the co-leads and core writing team members.

Strategic Plan		Relationship
<a href="#"><u>2014-2017 National Sea Grant Strategic Plan</u></a> (pg. 25)		Goal 10 notes the desire for an environmentally literate public supported and informed by a continuum of lifelong formal and informal engagement opportunities.
Co-leads	CT Sea Grant 2018-2021	Objective 5.4. notes the desire to develop and enhance the teaching and learning of ocean and coastal science content through educational research, assessment and evaluation strategies.
	MD Sea Grant 2018-2021	Focus Area 4 describes how effective formal and informal environmental science education is the foundation for building communities who understand environmental issues and engage in decision making about sustaining the coastal areas and watersheds.
	VA Sea Grant 2018-2021	Focus Area 1 tasks Virginia Sea Grant with developing transformational coastal, estuarine and ocean literacy and professional development programming in order to foster an environmentally literate, diverse public that is informed by lifelong formal and informal engagement opportunities.
Core Writing Team	NH Sea Grant 2014-2017	The overall goal for ELWD is for New Hampshire citizens to increase their environmental literacy and stewardship activity and utilize that increased knowledge in natural resource decision-making.
	OH Sea Grant 2014-2017	Key action items under the ELWD goal to foster an environmentally literate public include increasing effective environmental literacy (1) instruction for students and (2) communication to stakeholders.
	USC Sea Grant 2018-2021	Key action items under ELWD Goal 1 to foster an environmentally literate public include increasing effective environmental literacy (1) instruction for students and (2) communication to stakeholders.

## Incorporating Research, Education and Outreach (Communication and Extension)

Literacy is the foundation upon which people make informed decisions. A lack of understanding of ocean, coastal, and Great Lakes science results in a generally uninformed and apathetic public regarding the vulnerability and value of our nation's coastal resources. This leads to a lack of understanding of coastal conservation and management decision making for people who are, and will be, our country's voters, workforce, and political and community leaders. National reports have reiterated the need for an informed public and well-trained workforce in ocean, coastal and Great Lakes issues (Pew Oceans Commission [2003]; U.S. Commission on Ocean Policy [2004]). Specifically, [Chapter 8 the U.S. Commission on Ocean Policy](#) highlights the significance and excellence of the Sea Grant education program. (New Hampshire Sea Grant Publication: UNHMP-SP-SG-12-34, 2013)

The inclusion of more ocean, coastal and Great Lakes sciences in state and national standards increase the need for formal educators to seek professional development to strengthen their knowledge and confidence in teaching ocean science content. Programs like Sea Grant are well positioned to help existing and future formal educators by providing the access to quality science research, curricular resources, and teacher professional development necessary to fill this gap.

In developing the ten-year vision plan, the core writing team will consider both research strategies -- integrating the work of Sea Grant researchers into education and outreach products and programs, and ways to contribute to the body of professional knowledge in educational research.

## **Leadership and Participant Expectations**

### Sea Grant Educators Leading the Initiative

Sea Grant Education Network (SGEN) became formally organized in 1998. A strong organization of educators and outreach personnel with representation from nearly every state program, SGEN engages with the National Sea Grant Office and the broader Sea Grant Network through its involvement in the Networks Advisory Council and the Program Mission Committee. Sea Grant educators are known for their efforts to provide learners of all ages with enhanced science content knowledge, engaging and relevant outreach opportunities, and high-quality curricula for teaching about the relevance of watersheds, coastal processes, and marine and aquatic sciences.

Having been an established network for nearly 20 year, a number of logistical pieces are already in place. Sea Grant educators are revising and updating the Network's 2018-2021 Strategic Plan so there is a framework from which to begin. The network recently established an interactive online platform for collaborating on and managing documents that can be used as the vision development continues beyond the initial meeting. SGEN members are planning the next annual meeting to be held in July 2018 which aligns with funding timelines. Most importantly, Sea Grant educators bring a wealth of expertise to this process. Leadership and the core writing team hail from the east, west and north coasts, collectively have more than 150 years of educational experience, and represent both formal and informal education arenas.

Perhaps most importantly, Sea Grant educators are unique in that they are skilled in fields of science and education. In addition to facilitating programs in environmental literacy, they assist colleagues that may be weaving environmental literacy efforts within research and outreach into Sea Grant's three other focus areas (Healthy Coastal Ecosystems, Resilient Communities and Economies, and Sustainable Fisheries and Aquaculture). Sea Grant educators are known for their efforts to provide formal and nonformal educators with enhanced science content knowledge, engaging and relevant professional development opportunities, and high-quality curricula for teaching students about the relevance of watersheds, coastal processes, and marine and aquatic sciences. Furthermore, numerous Sea Grant educators played integral roles in developing Ocean

and Great Lakes Literacy Principles, frameworks for conveying the most important science principles and interconnected concepts that all citizens should understand.

### Levels of Participation Expectations from Sea Grant Programs and the NGSO

There is potential for national participation in the Environmental Literacy visioning effort from every Sea Grant program.

#### *Role of the Leadership Team*

Co-leading states (Connecticut, Maryland, Virginia) will plan the logistics and agenda of the fall 2017 in-person meeting, capture input from all programs that choose to provide it, oversee and facilitate the completion and dissemination of a draft document, coordinate data analysis of vision drafts, and plan the logistics and agenda for the summer 2018 meeting when everything will be nearly finalized.

#### *Role of the Core Writing Team*

Sea Grant members on the core writing team (including co-leads) will be responsible for working on and developing Sea Grant's Ten-Year Vision for Environmental Literacy. They will attend the fall 2017 in-person work session and continue to work on drafts of the vision online so that it is ready to share with team members who will be reviewers. The core writing team will reconvene in July 2018, in conjunction with the National Marine Educators Association Conference, to review and produce a near-final draft.

#### *Role of Reviewers*

In a third option for involvement, Sea Grant members can be involved in the reviewing of draft documents online and through webinars. They are NOT expected to (but certainly can) attend meetings in Fall 2017 or Summer 2018.

#### *Role of the National Sea Grant Office*

Assistance from the NSGO will include facilitating conversations, ensuring that the vision is national in scope, providing some consistency and exchange of best practices among efforts, and helping engage programs across the network and relevant partners.

	Participants	Expectations
<b>Co-Leads (plan, in person, online/calls)</b>	Diana Payne, CT Adam Frederick, MD Jackie Takacs, MD Lisa Lawrence, VA	<ul style="list-style-type: none"> <li>• create and disseminate pre-visioning surveys to gather initial input from all programs</li> <li>• plan and participate in initial core writing team meeting (November 2017)</li> <li>• contribute to drafts of the visioning products</li> <li>• participate (as available) in conference calls and/or webinars to provide feedback on drafts</li> <li>• plan and participate in the final meeting (July 2018)</li> <li>• develop and disseminate final documents and resources</li> </ul>
<b>Core Writing Team (in person, online/calls)</b>	Judy Benson, CT Mark Wiley, NH Lyndsey Manzo, OH Linda Chilton, USC	<ul style="list-style-type: none"> <li>• disseminate and participate in pre-visioning surveys to gather initial input from all programs</li> <li>• participate in initial core writing team meeting (November 2017)</li> <li>• contribute to drafts of the visioning products</li> <li>• participate (as available) in conference calls and/or webinars to provide feedback on drafts</li> <li>• participate in the final meeting (July 2018)</li> <li>• develop and disseminate final documents and resources</li> </ul>
<b>Reviewers (online/calls)</b>	Chris Petrone, DE Maia McGuire, FL Dianne Lindstedt, LA Brandon Schroeder, MI Tina Miller-Way, MS-AL Terri Kirby Hathaway, NC Diana Burich, NJ Tracy Crews, OR Jenny East, OR Marti Martz, PA E.V. Bell, SC Celia Cackowski, VA Maile Sullivan, WA Rosanne Fortner, NSGAB	<ul style="list-style-type: none"> <li>• participate in pre-visioning surveys to gather initial input from all programs</li> <li>• review initial drafts of the visioning products</li> <li>• participate (as available) in conference calls and/or webinars to provide feedback on drafts</li> <li>• disseminate final documents and resources</li> </ul>
<b>National Sea Grant Office</b>	Jon Lilley	<ul style="list-style-type: none"> <li>• disseminate and participate in pre-visioning surveys to gather initial input from all programs</li> <li>• participate (if possible) in initial core writing team meeting (November 2017)</li> <li>• contribute to drafts of the visioning products</li> <li>• participate (as available) in conference calls and/or webinars to provide feedback on drafts</li> <li>• participate (if possible) in the final meeting (July 2018)</li> <li>• review and disseminate final visioning products</li> </ul>

## **General Resources**

The co-leads and core writing team will meet in-person in the College Park, MD in November 2017 where they will determine the core vision priorities and outline the initial draft. Maryland can provide in-kind meeting space for the initial visioning meeting. An external facilitator, Jennifer Dindinger, will assist during this initial two day meeting. Her roles will include: working with co-leads to gather pre-meeting information to determine core vision priorities and areas for expanded vision (survey), design and facilitate core writing team meeting, and provide final meeting notes and guidance for next steps for implementation.

From December 2017 through June 2018 additional Sea Grant educators, researchers, communicators, and extension agents will join the reviewing and refining process via webinars and online collaboration facilitated by the co-leads. The final working session will take place in July 2018 in conjunction with the annual Sea Grant Education Network meeting at the National Marine Educators Association (NMEA) conference in Long Beach, CA. Maryland Sea Grant communicators will assist with developing the final vision plan document.

Grant funding and/or match will support travel, hotel and food for participants, materials and space for in-person meetings, and facilitator costs.

## **General Budget**

<b>Program</b>	<b>Expense Covered by Grant</b>	<b>Expense Covered In-Kind</b>
CT	printing costs, some salary and travel	some salary and travel
MD	communications and design of document, some travel support	meeting space in College Park, MD
VA	external facilitator, some salary and travel support	

Travel for other members attending the core writing meeting in November 2017 will come from the individual states' vision budgets (CT, NH, OH, USC). Attendance at the annual SGEN meeting at NMEA (July 2018) is typically covered by state program budgets.

## Timeline

When	What	Who	Where/How
September 2017	create and disseminate pre-visioning surveys	co-lead states	virtual web meetings and/or calls
October 2017	plan initial core writing team meeting	facilitator	
November 2017	draft of initial visioning document and resources	co-lead states facilitator core writing team states	College Park, MD face-to-face 2-day meeting
December 2017	continue to draft initial visioning document and resources	co-lead states	virtual web meetings and/or calls
January 2018		core writing team states	
February 2018	disseminate draft and provide feedback	co-lead states	virtual web meetings and/or calls
March 2018		core writing team states interested Sea Grant staff	online surveys on own or with colleagues
April 2018	review comments and revise draft	co-lead states	virtual web meetings and/or calls
May 2018		core writing team states	
June 2018	plan final meeting	co-lead states	virtual web meetings and/or calls
July 2018	incorporate feedback and construct final document	co-lead states core writing team states interested Sea Grant staff	Long Beach, CA face-to-face meeting in conjunction at the National Marine Educators Assoc. Annual Conference
August 2018	produce and disseminate final document	co-lead states MD Sea Grant communicators	College Park, MD in person or via calls